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SHELBYVILLE RESERVOIR, MOULTRIE AND SHELBY COUNTIES, ILLINOIS

PACIFIC NORTHWEST ENVIRONMENTAL RESEARCH LABORATORY

PREPARED FOR
NATIONAL ENVIRONMENTAL RESEARCH CENTER

JUNE 1975

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PB 252 086

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL EUTROPHICATION SURVEY

WORKING PAPER SERIES

REPORT

ON

SHELBYVILLE RESERVOIR

MOULTRIE AND SHELBY COUNTIES

ILLINOIS

EPA REGION V

WORKING PAPER No. 315

CORVALLIS ENVIRONMENTAL RESEARCH LABORATORY - CORVALLIS, OREGON

and

ENVIRONMENTAL MONITORING & SUPPORT LABORATORY - LAS VEGAS, NEVADA

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ON
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WITH THE COOPERATION OF THE

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

AND THE

ILLINOIS NATIONAL GUARD

JUNE, 1975

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16. ABSTRACT

Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivided according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
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FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to fresh water lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point-source discharge reduction and non-point source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's fresh water lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by EPA and to augment plans implementation by the states.

ACKNOWLEDGMENT

The staff of the National Eutrophication Survey (Office of Research & Development, U. S. Environmental Protection Agency) expresses sincere appreciation to the Illinois Environmental Protection Agency for professional involvement and to the Illinois National Guard for conducting the tributary sampling phase of the Survey.

Dr. Richard H. Briceland, Director of the Illinois Environmental Protection Agency; and Ronald M. Barganz, State Survey Coordinator, and John J. Forneris, Manager of Region III, Field Operations Section of the Division of Water Pollution Control, provided invaluable lake documentation and counsel during the Survey, reviewed the preliminary reports, and provided critiques most useful in the preparation of this Working Paper series.

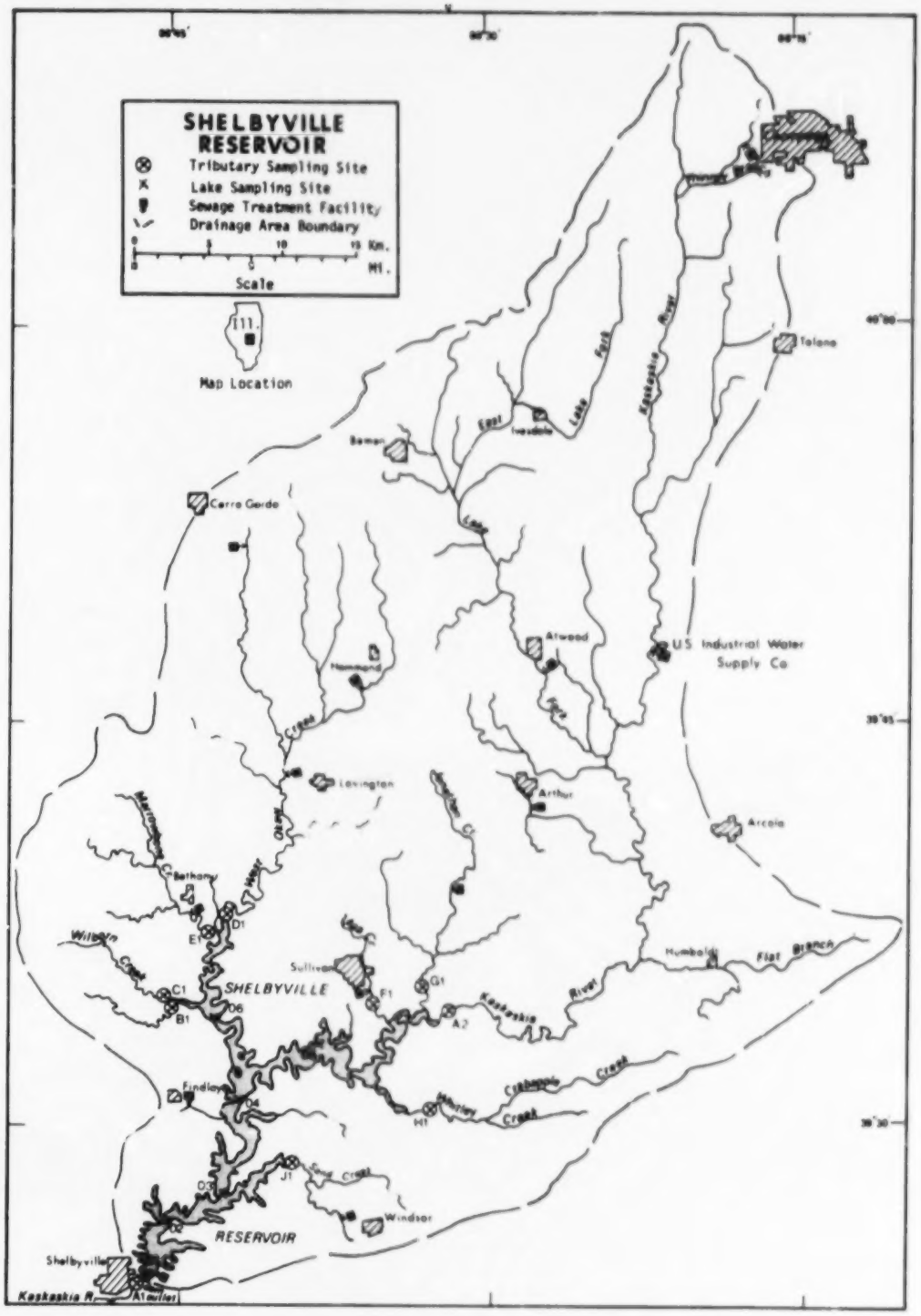
Major General Harold R. Patton, the Adjutant General of Illinois, and Project Officer Colonel Daniel L. Fane, who directed the volunteer efforts of the Illinois National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF ILLINOIS

LAKE NAME	COUNTY
Baldwin	Randolph
Bloomington	McLean
Carlyle	Bond, Clinton, Fayette
Cedar	Lake
Charleston	Coles
Coffeen	Montgomery
Crab Orchard	Jackson, Williamson
Decatur	Macon
DePue	Bureau
East Loon	Lake
Fox	Lake
Grass	Lake
Highland Silver	Madison
Holiday	LaSalle
Horseshoe	Madison
Long	Lake
Lou Yaeger	Montgomery
Marie	Lake
Old Ben Mine	Franklin
Pistakee	Lake, McHenry
Raccoon	Marion
Rend	Franklin, Jefferson
Sangchris	Christian
Shelbyville	Moultrie, Shelby
Slocum	Lake
Springfield	Sangamon
Storey	Knox
Vandalia	Fayette
Vermilion	Vermilion
Wee Ma Tuk	Fulton
Wonder	McHenry


SHELBYVILLE RESERVOIR
Tributary Sampling Site
Lake Sampling Site
Sewage Treatment Facility
Drainage Area Boundary
Scale
Ill.
Map Location
Tolono
Ivesdale
Bemen
Cerro Gordo
Atwood
U.S. Industrial Water Supply Co
Hammond
Lovington
Arthur
Arcola
Bethany
Sullivan
Humboldt
Flat Branch
SHELBYVILLE
RESERVOIR
Findlay
Windsor
Shelbyville
Kaskaskia R.
Atwater
Kaskaskia River
Lake Fork
East Lake Fork
Wilborn Creek
Crabapple Creek
Whitley Creek
Sand Creek
Marrowbone Cr.
West Okaw
Lake Cr.
Jonathan Cr.
A1
A2
B1
C1
D1
D2
D3
D4
D6
E1
F1
G1
H1
J1

SHELBYVILLE RESERVOIR

STORET NO. 1739

I. CONCLUSIONS

A. Trophic Condition:

Survey data indicate Shelbyville Reservoir is eutrophic. Of the 31 Illinois water bodies sampled in 1973, Shelbyville Reservoir ranked tenth in overall trophic quality using a combination of six water quality parameters*. Five of the lakes had less median total phosphorus, eight had less median dissolved phosphorus, 25 had less median inorganic nitrogen, nine had less mean chlorophyll a, and five had greater mean Secchi disc transparency. Depression of dissolved oxygen with depth occurred at all sampling stations in August and at stations 1 and 2 in October, 1973.

During their visits to the reservoir, Survey limnologists did not observe any nuisance conditions.

B. Rate-Limiting Nutrient:

The algal assay results indicate Shelbyville Reservoir was phosphorus limited at the time the sample was collected (05/08/73). The reservoir data indicate phosphorus limitation at the other sampling times as well.

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* See Appendix A.

C. Nutrient Controllability:

1. Point sources--The phosphorus contribution of point sources amounted to 21.0% of the total load reaching the reservoir during the sampling year. The Urbana-Champaign Sanitary District plant contributed 12.3% of the total load; the Sullivan plant, 2.8%; the Authur plant, 1.3%; the nine other domestic plants collectively contributed 4.6%; and the U.S. Industrial Water Supply Company contributed 0.7%.

Survey data indicate a total phosphorus loading rate of 4.12 $g/m^2/yr$ which is nearly six times the rate proposed by Vollenweider (Vollenweider and Dillon, 1974) as a eutrophic rate (see page 16). While even 100% phosphorus removal at the above point sources would only reduce the loading rate to 3.26 $g/m^2/yr$ (over four times the eutrophic rate), the reservoir is phosphorus limited, and any substantial reduction in phosphorus input should result in at least some improvement in the trophic condition of Shelbyville Reservoir, particularly if significant portions of the phosphorus export of three of the reservoir tributaries prove to be controllable (see below).

2. Non-point sources--The phosphorus export rates of the Kaskaskia River (69 $kg/km^2/yr$), Asa Creek (145 $kg/km^2/yr$), and Marrowbone Creek (95 $kg/km^2/yr$) exceeded the rates of the other

six Shelbyville tributaries (mean of 31 kg/km^2/yr, range of 20 to 44 kg/km^2/yr; see page 15).

It seems unlikely that the high rates of the three streams resulted solely from underestimation of the point-source phosphorus loads; e.g., the Kaskaskia River phosphorus load would have to be reduced by over 32,000 kg (36%) to lower the export rate to 44 kg/km^2/yr. Similarly, the Marrowbone Creek load would have to be reduced 7,800 kg (54%), and the Asa Creek load would have to be reduced nearly 3,600 kg (70%).

Since all point sources known to the Illinois Environmental Protection Agency were accounted for, it appears that land-use practices in the three drainages differ markedly from the practices in the other Shelbyville tributary drainages. However, a more-detailed study of the three streams is needed to confirm this.

The Kaskaskia River accounted for 49.4% of the total phosphorus input to the reservoir, and Marrowbone Creek contributed 7.8%. Wilborn Creek and the unnamed creek (B-1) were the lowest with 0.5% and 0.4%, respectively. The minor tributaries and immediate drainage were estimated to have contributed 5.0% of the total phosphorus input to the reservoir.

II. LAKE AND DRAINAGE BASIN CHARACTERISTICS†

A. Lake Morphometry††:

1. Surface area: 44.52 kilometers^2.

2. Mean depth: 5.0 meters.

3. Maximum depth: >15.5 meters.

4. Volume: 222.028 x 10^6 m^3.

5. Mean hydraulic retention time: 131 days.

B. Tributary and Outlet:
(See Appendix C for flow data)

1. Tributaries -

Name	Drainage area (km^2)*	Mean flow (m^3/sec)*
Kaskaskia River	1,310.5	9.3
Unnamed Creek (B-1)	32.9	0.2
Wilborn Creek	43.3	0.3
West Okaw Creek	442.9	2.9
Marrowbone Creek	150.7	1.0
Asa Creek	35.2	0.2
Jonathan Creek	146.9	0.9
Whitley Creek	118.9	0.8
Sand Creek	54.1	0.3
Minor tributaries & immediate drainage -	350.0	3.7
Totals	2,685.4	19.6

2. Outlet -

Kaskaskia River	2,729.9**	19.6

C. Precipitation***:

1. Year of sampling: 155.7 centimeters.

2. Mean annual: 97.4 centimeters.

† Table of metric conversions--Appendix B.
†† Forneris, 1973.
* For limits of accuracy, see Working Paper No. 175, "...Survey Methods, 1973-1976".
** Includes area of lake.
*** See Working Paper No. 175.

III. LAKE WATER QUALITY SUMMARY

Shelbyville Reservoir was sampled three times during the open-water season of 973 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from six stations on the lake and from a number of depths at each station (see map, page v). During each visit, a single depth-integrated (4.6 m or near bottom to surface) sample was composited from the stations for phytoplankton identification and enumeration; and during the first visit, two 18.9-liter depth-integrated samples were composited for algal assays (stations 1, 2, and 3 were combined, and stations 4, 5, and 6 were combined). Also each time, a depth-integrated sample was collected from each of the stations for chlorophyll a analysis. The maximum depths sampled were 10.4 meters at station 1, 15.5 meters at station 2, 11.9 meters at station 3, 11.3 meters at station 4, 8.8 meters at station 5, and 7.0 meters at station 6.

The lake sampling results are presented in full in Appendix D and are summarized in the following table.

A. SUMMARY OF PHYSICAL AND CHEMICAL CHARACTERISTICS FOR LAKE SHELBYVILLE
STORET CODE 1739

PARAMETER	1ST SAMPLING (5/ 8/73) 6 SITES RANGE	MEAN	MEDIAN	2ND SAMPLING (8/ 9/73) 6 SITES RANGE	MEAN	MEDIAN	3RD SAMPLING (10/18/73) 6 SITES RANGE	MEAN	MEDIAN
TEMP (C)	13.9 - 15.9	15.3	15.3	17.5 - 27.7	25.9	26.5	17.8 - 20.8	19.7	20.1
DISS OXY (MG/L)	7.0 - 10.8	9.4	9.6	0.2 - 10.0	4.2	3.8	3.6 - 8.4	6.2	6.4
CNDCTVY (MCROMO)	370. - 540.	467.	500.	342. - 468.	422.	424.	366. - 441.	384.	375.
PH (STAND UNITS)	8.0 - 8.5	8.3	8.3	7.3 - 8.7	7.9	7.9	7.4 - 8.1	7.7	7.7
TOT ALK (MG/L)	127. - 183.	167.	181.	143. - 240.	161.	155.	162. - 210.	174.	166.
TOT P (MG/L)	0.045 - 0.195	0.106	0.084	0.021 - 0.289	0.053	0.035	0.023 - 0.128	0.063	0.050
ORTHO P (MG/L)	0.009 - 0.146	0.059	0.037	0.005 - 0.228	0.024	0.008	0.014 - 0.040	0.023	0.021
NO2+NO3 (MG/L)	4.620 - 6.670	5.954	6.220	0.600 - 3.830	2.921	3.160	1.340 - 2.140	1.882	2.025
AMMONIA (MG/L)	0.040 - 0.130	0.077	0.060	0.050 - 2.210	0.267	0.090	0.010 - 0.080	0.044	0.040
KJEL N (MG/L)	0.300 - 0.900	0.579	0.600	0.600 - 3.400	1.103	1.000	0.400 - 1.180	0.639	0.600
INORG N (MG/L)	4.740 - 6.750	6.[illegible]1	6.280	2.530 - 4.090	3.188	3.245	1.380 - 2.190	1.926	2.055
TOTAL N (MG/L)	5.120 - 7.270	6.533	6.860	3.340 - 4.830	4.025	4.070	2.120 - 2.890	2.521	2.510
CHLRPYL A (UG/L)	2.9 - 43.5	20.5	21.1	8.4 - 39.5	18.1	14.4	5.3 - 26.3	12.8	10.2
SECCHI (METERS)	0.5 - 1.5	0.9	1.0	1.2 - 1.8	1.6	1.6	0.3 - 0.9	0.5	0.5

B. Biological characteristics:

1. Phytoplankton -

Sampling Date	Dominant Genera	Algal units per ml
05/08/73	1. Centric diatoms	2,476
	2. Flagellates	2,459
	3. *Stephanodiscus sp.*	1,451
	4. *Melosira sp.*	1,059
	5. *Euglena sp.*	256
	Other genera	461
	Total	8,162
08/09/73	1. *Achnanthes sp.*	963
	2. Flagellates	935
	3. *Stephanodiscus sp.*	767
	4. *Nitzschia sp.*	460
	5. *Cryptomonas sp.*	321
	Other genera	1,019
	Total	4,465
10/18/73	1. *Melosira sp.*	483
	2. Flagellates	189
	3. *Aphanizomenon sp.*	141
	4. *Stephanodiscus sp.*	141
	5. *Cryptomonas sp.*	106
	Other genera	378
	Total	1,438

2. Chlorophyll a -

Sampling Date	Station Number	Chlorophyll a (µg/l)
05/08/73	01	19.7
	02	43.5
	03	27.7
	04	22.6
	05	6.9
	06	2.9
08/09/73	01	8.4
	02	14.8
	03	19.8
	04	14.1
	05	39.5
	06	11.9
10/18/73	01	6.3
	02	5.3
	03	9.5
	04	10.9
	05	26.3
	06	18.8

C. Limiting Nutrient Study:

1. Autoclaved, filtered, and nutrient spiked -

a. Stations 1, 2, and 3 -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.045	5.535	16.6
0.050 P	0.095	5.535	36.5
0.050 P + 1.0 N	0.095	6.535	44.1
1.0 N	0.045	6.535	15.1

b. Stations 4, 5, and 6 -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.020	6.240	5.2
0.050 P	0.070	6.240	23.6
0.050 P + 1.0 N	0.070	7.240	23.3
1.0 N	0.020	7.240	3.8

2. Discussion -

The control yields of the assay alga, Selenastrum capricornutum, indicate that the potential primary productivity of Shelbyville Reservoir was relatively high at the time of sampling (05/08/73), especially at stations 1, 2, and 3 (see map, page v). The results also indicate phosphorus limitation at that time. Note the lack of increase in yields when only nitrogen was added but the significant increase in yields when only phosphorus was added.

The reservoir data indicate phosphorus limitation at all sampling times. The mean inorganic nitrogen/orthophosphorus ratios were 84/1 or greater, and phosphorus limitation would be expected.

IV. NUTRIENT LOADINGS
(See Appendix E for data)

For the determination of nutrient loadings, the Illinois National Guard collected monthly near-surface grab samples from each of the tributary sites indicated on the map (page v), except for the high runoff month of March when two samples were collected. Sampling was begun in June, 1973, and was completed in May, 1974.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the Illinois District Office of the U.S. Geological Survey for the tributary sites nearest the lake.

In this report, nutrient loads for sampled tributaries were determined by using a modification of a U.S. Geological Survey computer program for calculating stream loadings*. Nutrient loads shown are those measured minus point-source loads, if any.

Nutrient loads for unsampled "minor tributaries and immediate drainage" ("ZZ" of U.S.G.S.) were estimated using the means of the nutrient exports, in $kg/km^2/year$, at station B-1, C-1, and H-1 and multiplying the means by the ZZ area in km^2.

The operators of the Corps of Engineers, Illinois Masonic Home, and Sullivan wastewater treatment plants provided monthly effluent samples and corresponding flow data. The operators of Arthur, Atwood,

* See Working Paper No. 175.

Bethany, Cerro Gordo School, Urbana-Champaign Sanitary District, Findlay, Hammond, Lovington, and Windsor treatment plants did not participate in the sampling program, and nutrient loads were estimated at 1.134 kg P and 3.401 kg N/capita/year.

The nutrient loads shown for the U.S. Industrial Water Supply Company were calculated using effluent data provided by the Illinois Environmental Protection Agency (Barganz, 1974); note, however, the nitrogen load is inorganic nitrogen only.

A. Waste Sources:

1. Known municipal† -

Name	Pop. Served	Treatment	Mean Flow (m^3/d)	Receiving Water
Arthur	2,100	contact stab.	794.8*	Kaskaskia River
Atwood	1,050	act. sludge	397.4*	Lake Fork
Bethany	750	act. sludge	283.9*	Marrowbone Creek
Cerro Gordo School	150	act. sludge	56.8*	West Okaw Creek
Corps of Engineers	10	act. sludge	6.5	Shelbyville Reservoir
Findlay	760	contact stab.	287.7*	Unnamed Creek
Hammond	730	ponds	276.3*	West Okaw Creek
Ill. Masonic Home	400	trickling filter	187.2	Jonathan Creek
Lovington	1,200	act. sludge	454.2*	West Okaw Creek
Sullivan	5,000	act. sludge	3,3033.6	Asa Creek
Urbana-Champaign SD	20,000	act. sludge	7,570.0*	Copper Slough/ Phinney Branch
Windsor	900	act. sludge	340.6*	Sand Creek

† Anonymous, 1972.
* Estimated at 0.3785 m^3/capita/day.

2. Known industrial* -

Name	Product	Treatment	Mean Flow (m^3/d)	Receiving Water
U.S. Ind. Water Supply Co., Ficklin	chemicals	coag., settling, + pond	1,892.5	Kaskaskia River

* Barganz, op. cit.

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

Source	kg P/ yr	% of total
a. Tributaries (non-point load) -		
Kaskaskia River	90,600	49.4
Unnamed Creek (B-1)	825	0.4
Wilborn Creek	855	0.5
West Okaw Creek	11,005	6.0
Marrowbone Creek	14,345	7.8
Asa Creek	5,110	2.8
Jonathan Creek	6,080	3.3
Whitley Creek	3,945	2.1
Sand Creek	2,365	1.3
b. Minor tributaries & immediate drainage (non-point load) -	9,100	5.0
c. Known municipal STP's -		
Arthur	2,380	1.3
Atwood	1,190	0.6
Bethany	850	0.5
Cerro Gordo School	170	<0.1
Corps of Engineers	<5	<0.1
Findlay	860	0.5
Hammond	830	0.5
Ill. Masonic Home	695	0.4
Lovington	1,360	0.7
Sullivan	5,080	2.8
Urbana-Champaign SD	22,680	12.3
Windsor	1,020	0.6
d. Septic tanks* -	15	<0.1
e. Known industrial -		
U.S. Ind. Water Supply Co.	1,380	0.7
f. Direct precipitation** -	780	0.4
Total	183,520	100.0

2. Outputs -

Lake outlet - Kaskaskia River 63,255

3. Net annual P accumulation - 120,265 kg.

* Estimate based on 60 lakeshore dwellings; see Working Paper No. 175.
** See Working Paper No. 175.

C. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

Source	kg N/ yr	% of total
a. Tributaries (non-point load) -		
Kaskaskia River	1,841,120	48.1
Unnamed Creek (B-1)	33,335	0.9
Wilborn Creek	53,540	1.4
West Okaw Creek	618,930	16.2
Marrowbone Creek	231,580	6.1
Asa Creek	48,310	1.3
Jonathan Creek	200,955	5.2
Whitley Creek	158,770	4.1
Sand Creek	57,095	1.5
b. Minor tributaries & immediate drainage (non-point load) -	418,135	10.9
c. Known municipal STP's -		
Arthur	7,140	0.2
Atwood	3,570	0.1
Bethany	2,550	0.1
Cerro Gordo School	510	<0.1
Corps of Engineers	45	<0.1
Findlay	2,585	0.1
Hammond	2,485	0.1
Ill. Masonic Home	985	<0.1
Lovington	4,080	0.1
Sullivan	13,320	0.3
Urbana-Champaign SD	68,020	1.8
Windsor	3,060	0.1
d. Septic tanks* -	640	<0.1
e. Known industrial -		
U.S. Ind. Water Supply Co.**	6,630	0.2
f. Direct precipitation*** -	48,065	1.2
Total	3,825,455	100.0

2. Outputs -

Lake outlet - Kaskaskia River 2,982,440

3. Net annual N accumulation - 843,015 kg.

* Estimate based on 60 lakeshore dwellings; see Working Paper No. 175.
** Inorganic N only.
*** See Working Paper No 175.

D. Mean Annual Non-point Nutrient Export by Subdrainage Area:

Tributary	kg P/km²/yr	kg N/km²/yr
Kaskaskia River	69*	1,404
Unnamed Creek (B-1)	25	1,013
Wilborn Creek	20	1,236
West Okaw Creek	25	1,397
Marrowbone Creek	95*	1,537
Asa Creek	145*	1,372
Jonathan Creek	41	1,368
Whitley Creek	35	1,335
Sand Creek	44	1,055

* Unusually high export rates indicate possible point-source impact.

E. Yearly Loading Rates:

In the following table, the existing phosphorus loading rates are compared to those proposed by Vollenweider (Vollenweider and Dillon, 1974). Essentially, his "dangerous" rate is the rate at which the receiving water would become eutrophic or remain eutrophic; his "permissible" rate is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A mesotrophic rate would be considered one between "dangerous" and "permissible".

Note that Vollenweider's model may not be applicable to water bodies with short hydraulic retention times.

	Total Phosphorus		Total Nitrogen	
	Total	Accumulated	Total	Accumulated
grams/m^2/yr	4.12	2.70	85.9	18.9

Vollenweider loading rates for phosphorus ($g/m^2/yr$) based on mean depth and mean hydraulic retention time of Shelbyville Reservoir:

"Dangerous" (eutrophic rate)	0.72
"Permissible" (oligotrophic rate)	0.36

V. LITERATURE REVIEWED

Anonymous, 1972. Wastewater treatment works data book. IL Env. Prot. Agency, Springfield.

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VI. APPENDICES

APPENDIX A

LAKE RANKINGS

LAKE DATA TO BE USED IN RANKINGS

19<

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P
1703	LAKE BLOOMINGTON	0.050	5.730	464.667	26.200	14.800	0.020
1706	LAKE CARLYLE	0.084	1.270	477.889	17.367	11.000	0.032
1708	LAKE CHARLESTON	0.160	4.680	490.667	12.000	8.400	0.065
1711	COFFEEN LAKE	0.032	0.260	456.222	7.700	14.900	0.012
1712	CRAB ORCHARD LAKE	0.082	0.200	482.222	59.867	13.800	0.013
1714	LAKE DECATUR	0.129	3.750	479.571	43.000	14.500	0.062
1725	LONG LAKE	0.704	1.190	482.667	49.333	8.800	0.398
1726	LAKE LOU YAEGER	0.186	1.600	489.583	10.662	11.400	0.076
1727	LAKE MARIE	0.098	0.370	467.667	39.533	14.700	0.057
1733	PISTAKEE LAKE	0.203	0.370	485.667	75.867	7.000	0.062
1735	REND LAKE	0.071	0.210	471.500	23.533	12.700	0.012
1739	LAKE SHELBYVILLE	0.062	3.290	461.333	17.161	14.800	0.019
1740	SILVER LAKE (HIGHLAND)	0.226	0.970	489.500	5.822	14.800	0.057
1742	LAKE SPRINGFIELD	0.108	3.265	483.385	13.013	10.800	0.059
1748	VERMILION LAKE	0.109	4.695	481.500	31.150	14.200	0.050
1750	WONDER LAKE	0.426	0.890	486.000	98.533	7.800	0.132
1751	LAKE STORY	0.072	2.510	459.333	17.250	14.800	0.021
1752	DEPUE LAKE	0.438	4.050	490.000	58.833	7.600	0.276
1753	LAKE SANGCHRIS	0.050	1.970	475.417	19.292	14.500	0.009
1754	LAKE HOLIDAY	0.167	3.135	485.167	51.217	7.200	0.046
1755	FOX LAKE	0.219	0.375	486.167	63.850	8.800	0.083
1756	GRASS LAKE	0.301	0.820	481.000	83.500	5.900	0.093
1757	EAST LOON LAKE	0.076	0.120	450.000	22.300	14.900	0.018
1758	SLOCUM LAKE	0.865	0.200	487.333	221.100	5.800	0.362
1759	CEDAR LAKE	0.029	0.170	400.333	5.767	12.800	0.013
1761	LAKE WEMATUK	0.069	1.770	466.333	7.967	14.500	0.031
1762	RACCOON LAKE	0.106	0.310	484.333	19.217	13.800	0.020
1763	BALDWIN LAKE	0.044	0.140	461.167	11.333	13.200	0.007

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500- MEAN SEC	MEAN CHLORA	15- MIN DO	MEDIAN DISS ORTHO P
1764	LAKE VANDALIA	0.116	0.480	478.111	11.276	14.800	0.023
1765	OLD BEN MINE RESERVOIR	0.930	0.205	478.333	31.433	11.200	0.575
1766	HORSESHOE LAKE	0.127	0.705	482.833	182.250	6.800	0.018

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

21<

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P	INDEX NO
1703	LAKE BLOOMINGTON	88 (26)	0 (0)	80 (24)	47 (14)	13 (2)	68 (20)	296
1706	LAKE CARLYLE	63 (19)	40 (12)	63 (19)	63 (19)	63 (19)	53 (16)	345
1708	LAKE CHARLESTON	37 (11)	7 (2)	0 (0)	77 (23)	77 (23)	27 (8)	225
1711	COFFEEN LAKE	97 (29)	77 (23)	93 (28)	93 (28)	2 (0)	92 (27)	454
1712	CRAB ORCHARD LAKE	67 (20)	90 (27)	43 (13)	20 (6)	42 (12)	85 (25)	347
1714	LAKE DECATUR	40 (12)	13 (4)	53 (16)	33 (10)	30 (8)	32 (9)	201
1725	LONG LAKE	7 (2)	43 (13)	40 (12)	30 (9)	72 (21)	3 (1)	195
1726	LAKE LOU YAEGER	30 (9)	37 (11)	7 (2)	87 (26)	57 (17)	23 (7)	241
1727	LAKE MARIE	60 (18)	68 (20)	73 (22)	37 (11)	23 (7)	42 (12)	303
1733	PISTAKEE LAKE	27 (8)	68 (20)	23 (7)	13 (4)	90 (27)	32 (9)	253
1735	REND LAKE	77 (23)	80 (24)	70 (21)	50 (15)	53 (16)	92 (27)	422
1739	LAKE SHELBYVILLE	83 (25)	17 (5)	83 (25)	70 (21)	13 (2)	73 (22)	339
1740	SILVER LAKE (HIGHLAND)	20 (6)	47 (14)	10 (3)	97 (29)	13 (2)	42 (12)	229
1742	LAKE SPRINGFIELD	53 (16)	20 (6)	33 (10)	73 (22)	67 (20)	37 (11)	283
1748	VERMILION LAKE	50 (15)	3 (1)	47 (14)	43 (13)	37 (11)	47 (14)	227
1750	WONDER LAKE	13 (4)	50 (15)	20 (6)	7 (2)	80 (24)	13 (4)	183
1751	LAKE STORY	73 (22)	27 (8)	90 (27)	67 (20)	13 (2)	63 (19)	333
1752	DEPUE LAKE	10 (3)	10 (3)	3 (1)	23 (7)	83 (25)	10 (3)	139
1753	LAKE SANGCHRIS	88 (26)	30 (9)	67 (20)	57 (17)	30 (8)	97 (29)	369
1754	LAKE HOLIDAY	33 (10)	23 (7)	27 (8)	27 (8)	87 (26)	50 (15)	247
1755	FOX LAKE	23 (7)	63 (19)	17 (5)	17 (5)	72 (21)	20 (6)	212
1756	GRASS LAKE	17 (5)	53 (16)	50 (15)	10 (3)	97 (29)	17 (5)	244
1757	EAST LOON LAKE	70 (21)	100 (30)	97 (29)	53 (16)	2 (0)	77 (23)	349
1758	SLOCUM LAKE	3 (1)	87 (26)	13 (4)	0 (0)	100 (30)	7 (2)	210
1759	CEDAR LAKE	100 (30)	93 (28)	100 (30)	100 (30)	50 (15)	85 (25)	528
1761	LAKE WEMATUK	80 (24)	33 (10)	77 (23)	90 (27)	30 (8)	57 (17)	367
1762	RACCOON LAKE	57 (17)	73 (22)	30 (9)	60 (18)	42 (12)	68 (20)	330
1763	BALDWIN LAKE	93 (28)	97 (29)	87 (26)	80 (24)	47 (14)	100 (30)	504

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500- MEAN SEC	MEAN CHLORA	15- MIN DO	MEDIAN DISS ORTHO P	INDEX NO
1764	LAKE VANDALIA	47 (14)	60 (18)	60 (18)	83 (25)	13 (2)	60 (18)	323
1765	OLD BEN MINE RESERVOIR	0 (0)	83 (25)	57 (17)	40 (12)	60 (18)	0 (0)	240
1766	HORSESHOE LAKE	43 (13)	57 (17)	37 (11)	3 (1)	93 (28)	80 (24)	313

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
1	1759	CEDAR LAKE	528
2	1763	BALDWIN LAKE	504
3	1711	COFFEEN LAKE	454
4	1735	RENO LAKE	422
5	1757	EAST LOON LAKE	399
6	1753	LAKE SANGCHRIS	369
7	1761	LAKE WEMATUK	367
8	1712	CRAB ORCHARD LAKE	347
9	1706	LAKE CARLYLE	345
10	1739	LAKE SHELBYVILLE	339
11	1751	LAKE STORY	333
12	1762	RACCOON LAKE	330
13	1764	LAKE VANDALIA	323
14	1766	HORSESHOE LAKE	313
15	1727	LAKE MARIE	303
16	1703	LAKE BLOOMINGTON	296
17	1742	LAKE SPRINGFIELD	283
18	1733	PISTAKEE LAKE	253
19	1754	LAKE HOLIDAY	247
20	1756	GRASS LAKE	244
21	1726	LAKE LOU YAEGER	241
22	1765	OLD BEN MINE RESERVOIR	240
23	1740	SILVER LAKE (HIGHLAND)	229
24	17[illegible]	VERMILION LAKE	227
25	1708	LAKE CHARLESTON	225
26	1755	FOX LAKE	212
27	1758	SLOCUM LAKE	210
28	1714	LAKE DECATUR	201

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
29	1725	LONG LAKE	195
30	1750	WONDER LAKE	183
31	1752	DEPUE LAKE	139

APPENDIX B

CONVERSIONS FACTORS

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x 8.107 x 10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

APPENDIX C

TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR ILLINOIS 10/23/75

LAKE CODE 1739 LAKE SHELBYVILLE

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 2729.9

TRIBUTARY	SUB-DRAINAGE AREA(SQ KM)	NORMALIZED FLOWS(CMS) JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
1739A1	2729.9	20.16	26.02	34.83	36.53	39.08	21.10	13.90	7.79	6.09	7.50	10.34	12.01	19.57
1739A2	1310.5	9.68	12.80	16.59	17.61	18.83	10.08	6.48	3.48	2.63	3.34	4.73	5.61	9.30
1739B1	32.9	0.20	0.32	0.39	0.40	0.31	0.27	0.16	0.08	0.05	0.06	0.09	0.11	0.20
1739C1	43.3	0.27	0.42	0.51	0.53	0.41	0.35	0.21	0.11	0.07	0.08	0.12	0.14	0.27
1739D1	442.9	3.00	4.28	5.44	5.64	4.45	3.65	2.26	1.19	0.87	1.03	1.40	1.64	2.09
1739E1	150.7	0.98	1.46	1.81	1.87	1.47	1.23	0.74	0.39	0.27	0.30	0.44	0.52	0.95
1739F1	35.2	0.22	0.35	0.42	0.43	0.33	0.29	0.17	0.09	0.06	0.06	0.09	0.11	0.22
1739G1	146.9	0.96	1.43	1.77	1.83	1.44	1.20	0.73	0.38	0.27	0.29	0.43	0.51	0.93
1739H1	118.9	0.77	1.16	1.43	1.48	1.16	0.97	0.59	0.31	0.21	0.23	0.35	0.41	0.75
1739J1	54.1	0.34	0.53	0.65	0.66	0.52	0.44	0.26	0.13	0.09	0.10	0.15	0.18	0.34
1739ZZ	393.7	3.77	3.28	5.83	6.09	10.17	2.61	2.31	1.63	1.55	2.04	2.54	2.78	3.73

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 2729.9 TOTAL FLOW IN = 235.38
SUM OF SUB-DRAINAGE AREAS = 2729.1 TOTAL FLOW OUT = 235.34

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
1739A1	6	73	39.36	2	39.36				
	7	73	40.49	7	46.44				
	8	73	60.88	4	61.73				
	9	73	51.54	9	61.16				
	10	73	11.69	14	0.02				
	11	73	19.54	3	1.93				
	12	73	44.74	1	42.75				
	1	74	38.79	5	52.07				
	2	74	128.84	3	75.32				
	3	74	108.74	2	139.04	16	97.13		
	4	74	24.47	6	20.81				
	5	74	34.26	4	21.32				
1739A2	6	73	26.50	2	8.78				
	7	73	31.15	7	15.18				
	8	73	13.34	4	36.25				
	9	73	1.27	9	0.01				
	10	73	2.46	13	1.73				
	11	73	5.18	3	3.45				
	12	73	31.71	1	17.27				
	1	74	56.35	4	30.58				
	2	74	28.60	3	40.49				
	3	74	32.28	2	44.17	16	19.91		
	4	74	32.28	6	35.96				
	5	74	39.08	4	9.23				

TRIBUTARY FLOW INFORMATION FOR ILLINOIS 10/23/75

LAKE CODE 1739 LAKE SHELBYVILLE

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
173981	6	73	0.91	2	0.42				
	7	73	0.79	7	0.14				
	8	73	0.11	4	0.25				
	9	73	0.00	9	0.01				
	10	73	0.03	13	0.03				
	11	73	0.11	3	0.01				
	12	73	0.59	1	0.31				
	1	74	1.44	5	0.54				
	2	74	0.57	3	0.28				
	3	74	0.76	2	0.74	16	0.68		
	4	74	1.02	6	1.27				
	5	74	2.01	4	0.15				
1739C1	6	73	1.19	2	0.54				
	7	73	1.05	7	0.24				
	8	73	0.14	4	0.34				
	9	73	0.00	9	0.01				
	10	73	0.03	13	0.05				
	11	73	0.15	3	0.01				
	12	73	0.79	1	0.42				
	1	74	19.26	5	0.71				
	2	74	0.74	3	0.37				
	3	74	0.99	2	0.96	16	0.91		
	4	74	1.33	6	1.70				
	5	74	2.66	4	0.20				
173901	6	73	9.60	2	3.17				
	7	73	10.87	7	5.27				
	8	73	4.56	4	12.37				
	9	73	0.42	9	0.48				
	10	73	0.74	13	0.51				
	11	73	1.53	3	1.02				
	12	73	9.29	1	5.04				
	1	74	17.47	5	9.49				
	2	74	9.57	3	13.51				
	3	74	10.53	2	14.53	16	14.53		
	4	74	10.36	6	11.50				
	5	74	13.90	4	2.18				
1739E1	6	73	4.08	2	1.90				
	7	73	3.60	7	1.76				
	8	73	1.47	7	4.02				
	9	73	0.13	9	0.15				
	10	73	0.22	13	0.16				
	11	73	0.48	3	0.31				
	12	73	2.97	1	1.61				
	1	74	5.69	5	3.09				
	2	74	3.26	3	4.62				
	3	74	3.51	2	4.84	16	4.84		
	4	74	3.43	6	3.82				
	5	74	4.59	4	0.71				

TRIBUTARY FLOW INFORMATION FOR ILLINOIS 10/23/75

LAKE CODE 1739 LAKE SHELBYVILLE

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
1739F1	6	73	0.96	2	0.45				
	7	73	0.85	7	0.19				
	8	73	0.12	4	0.27				
	9	73	0.00	8	0.01				
	10	73	0.03	13	0.03				
	11	73	0.12	3	0.01				
	12	73	0.65	1	0.34				
	1	74	1.56	4	0.57				
	2	74	0.59	2	0.31				
	3	74	0.79	2	0.79	16	0.74		
	4	74	1.10	6	1.36				
	5	74	2.15	4	0.16				
1739G1	6	73	3.99	2	1.84				
	7	73	3.51	7	1.70				
	8	73	1.44	4	3.96				
	9	73	0.13	8	0.15				
	10	73	0.22	13	0.15				
	11	73	0.48	3	0.31				
	12	73	2.92	1	1.59				
	1	74	5.58	4	3.03				
	2	74	3.20	2	4.50				
	3	74	3.43	2	4.73	16	4.73		
	4	74	3.37	6	3.74				
	5	74	4.50	4	1.08				
1739H1	6	73	3.23	2	1.50				
	7	73	2.83	7	1.36				
	8	73	1.16	7	3.17				
	9	73	0.10	8	0.12				
	10	73	0.17	13	0.12				
	11	73	0.37	3	0.25				
	12	73	2.32	1	1.25				
	1	74	4.47	5	2.44				
	2	74	2.61	2	3.65				
	3	74	2.78	2	3.82	16	3.82		
	4	74	2.72	6	3.00				
	5	74	3.62	4	0.85				
1739J1	6	73	1.47	2	0.68				
	7	73	1.30	7	0.28				
	8	73	0.18	4	0.42				
	9	73	0.01	8	0.01				
	10	73	0.04	13	0.06				
	11	73	0.19	3	0.02				
	12	73	1.02	1	0.51				
	1	74	2.44	5	0.91				
	2	74	0.93	3	0.48				
	3	74	1.25	2	1.22	16	1.13		
	4	74	1.70	6	2.12				
	5	74	3.34	4	0.25				

TRIBUTARY FLOW INFORMATION FOR ILLINOIS 10/23/75

LAKE CODE 1739 LAKE SHELBYVILLE

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
1739ZZ	6	73	8.64	2	2.86				
	7	73	9.77	7	4.73				
	8	73	4.08	4	11.10				
	9	73	0.37	9	0.42				
	10	73	0.65	14	0.45				
	11	73	0.06	3	0.01				
	12	73	8.30	1	4.50				
	1	74	15.72	5	8.52				
	2	74	8.41	3	11.44				
	3	74	9.46	2	12.71	16	8.61		
	4	74	9.63	6	10.85				
	5	74	12.74	4	2.49				

APPENDIX D

PHYSICAL and CHEMICAL DATA

STORET RETRIEVAL DATE 75/10/23

173901
39 24 30.0 088 46 30.0
LAKE SHELBYVILLE
17173 ILLINOIS

11EPALES
3

2111202
0037 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/05/08	09 30	0000	14.7		60	500	8.30	182	0.080	0.700	6.270	0.020
	09 30	0006	14.7	9.6		500	8.30	182	0.060	0.500	6.220	0.017
	09 30	0015	14.7	9.9		500	8.30	183	0.060	0.600	6.130	0.018
	09 30	0024	14.6	9.8		540	8.30	181	0.060	0.900	6.080	0.018
	09 30	0033	14.5	9.2		540	8.10	182	0.070	0.500	6.180	0.026
73/08/09	11 35	0000	26.5		72	436	8.00	158	0.060	0.800	3.280	0.008
	11 35	0005	26.5	5.0		436	7.80	157	0.060	0.700	3.180	0.006
	11 35	0010	26.3	3.0		436	7.70	158	0.070	0.800	3.220	0.006
	11 35	0015	26.2	2.6		437	7.60	158	0.090	0.700	3.160	0.007
	11 35	0025	26.0	1.4		435	7.40	160	0.110	0.800	3.100	0.008
	11 35	0034	23.9	1.0		456	7.40	190	0.690	1.500	1.840	0.014
73/10/18	16 20	0000	20.4		18	378	7.70	167	0.050	0.800	2.090	0.014
	16 20	0010	20.5	5.2		380	7.50	167	0.050	0.600	2.140	0.014
	16 20	0020	20.3	4.6		377	7.50	169	0.040	0.400	2.080	0.015

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/05/08	09 30	0000	0.069	19.7
	09 30	0006	0.060	
	09 30	0015	0.063	
	09 30	0024	0.060	
	09 30	0033	0.071	
73/08/09	11 35	0000	0.023	8.4
	11 35	0005	0.023	
	11 35	0010	0.021	
	11 35	0015	0.023	
	11 35	0025	0.024	
	11 35	0034	0.034	
73/10/18	16 20	0000	0.035	6.3
	16 20	0010	0.036	
	16 20	0020	0.036	

STORET RETRIEVAL DATE 75/10/23

173902
39 26 30.0 088 45 40.0
LAKE SHELBYVILLE
17173 ILLINOIS

11EPALES
3

2111202
0054 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/05/08	10 10	0000	15.3		40	500	8.50	182	0.070	0.800	6.300	0.009
	10 10	0006	15.3	10.8		500	8.50	181	0.060	0.800	6.240	0.010
	10 10	0015	15.3	10.7		500	8.50	182	0.060	0.700	6.290	0.011
	10 10	0025	15.2	10.6		500	8.40	182	0.060	0.600	6.300	0.013
	10 10	0037	15.0	10.3		500	8.20	181	0.070	0.600	6.390	0.018
	10 10	0050	13.9	7.0		500	8.20	183	0.120	0.500	6.400	0.041
73/08/09	12 05	0000	27.1		68	438	8.30	158	0.070	1.000	3.220	0.005
	12 05	0005	27.1	6.8		437	8.30	158	0.060	0.800	3.220	0.007
	12 05	0015	27.0	6.0		436	8.00	157	0.060	0.900	3.220	0.009
	12 05	0025	26.1	1.8		424	7.50	155	0.070	0.800	3.280	0.014
	12 05	0040	23.2	0.2		457	7.50	199	1.330	2.700	1.640	0.094
	12 05	0051	17.5	0.5		423	7.50	240	2.210	3.400	0.680	0.220
73/10/18	15 20	0000	20.8		36	379	7.50	165	0.060	0.700	2.060	0.014
	15 20	0015	20.4	3.8		375	7.40	166	0.080	0.600	2.090	0.015
	15 20	0040	20.1	3.6		376	7.40	166	0.080	0.600	2.060	0.021

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/05/08	10 10	0000	0.045	43.5
	10 10	0006	0.079	
	10 10	0015	0.080	
	10 10	0025	0.069	
	10 10	0037	0.075	
	10 10	0050	0.091	
73/08/09	12 05	0000	0.023	14.8
	12 05	0005	0.025	
	12 05	0015	0.028	
	12 05	0025	0.030	
	12 05	0040	0.161	
	12 05	0051	0.289	
73/10/18	15 20	0000	0.043	5.3
	15 20	0015	0.040	
	15 20	0040	0.044	

STORET RETRIEVAL DATE 75/10/23

173903
39 27 30.0 088 42 40.0
LAKE SHELBYVILLE
17173 ILLINOIS

11EPALES 2111202
3 0035 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/05/08	10 40	0000	15.2		40	500	8.40	183	0.050	0.600	6.330	0.029
	10 40	0006	15.2	10.3		520	8.40	182	0.050	0.600	6.410	0.029
	10 40	0015	15.1	10.6		510	8.30	183	0.050	0.500	6.360	0.029
	10 40	0022	15.0	10.0		520	8.30	183	0.060	0.600	6.570	0.030
	10 40	0031	14.8	8.8		500	8.50	183	0.080	0.600	6.670	0.037
73/08/09	15 00	0000	26.9		62	429	8.30	154	0.050	1.300	3.220	0.015
	15 00	0005	26.9	6.6		429	8.20	151	0.060	0.600	3.230	0.005
	15 00	0015	26.9	6.4		429	7.90	150	0.090	0.700	2.810	0.010
	15 00	0025	25.9	2.2		414	7.30	152	0.160	0.700	2.780	0.015
	15 00	0039	23.8	0.8		417	8.00	174	0.790	1.500	1.880	0.035
73/10/18	15 00	0000	20.5		11	373	7.70	162	0.030	0.700	1.970	0.022
	15 00	0005	20.4	6.6		374	7.60	162	0.030	0.500	2.020	0.016
	15 00	0015	20.3	6.4		370	7.60	166	0.010K	0.400	2.050	0.014
	15 00	0021	20.2	6.2		372	7.70	162	0.030	0.400	2.040	0.019

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/05/08	10 40	0000	0.080	27.7
	10 40	0006	0.084	
	10 40	0015	0.077	
	10 40	0022	0.076	
	10 40	0031	0.080	
73/08/09	15 00	0000	0.032	19.8
	15 00	0005	0.027	
	15 00	0015	0.029	
	15 00	0025	0.035	
	15 00	0039	0.065	
73/10/18	15 00	0000	0.050	9.5
	15 00	0005	0.051	
	15 00	0015	0.023	
	15 00	0021	0.050	

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/10/23

173904
39 31 05.0 088 42 05.0
LAKE SHELBYVILLE
17139 ILLINOIS

11EPALES
3

2111202
0039 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/05/08	11 10	0000	15.6		36	460	8.30	170	0.040	0.600	6.120	0.070
	11 10	0006	15.6	9.6		480	8.30	170	0.040	0.300	6.080	0.070
	11 10	0015	15.5	9.5		480	8.30	170	0.040	0.600	6.030	0.067
	11 10	0025	15.5	8.3		460	8.40	172	0.050	0.600	6.300	0.065
	11 10	0035	15.5	9.5		480	8.40	174	0.050	0.600	6.370	0.062
73/08/09	15 25	0000	27.1		62	422	8.30	149	0.090	1.000	3.100	0.007
	15 25	0005	27.1	7.4		421	8.30	149	0.070	0.700	3.180	0.008
	15 25	0015	27.1	7.2		420	8.00	146	0.080	0.800	3.260	0.014
	15 25	0025	25.6	1.6		402	7.40	151	0.260	0.900	3.160	0.038
	15 25	0037	23.8	0.6		342	7.50	143	0.440	1.200	2.420	0.043
73/10/18	14 40	0000	19.9		20	370	7.90	166	0.030	0.600	2.030	0.027
	14 40	0015	19.6	6.4		367	7.80	166	0.070	0.600	1.900	0.032
	14 40	0023	19.5	6.4		366	7.80	163	0.040	0.500	1.940	0.030

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/05/08	11 10	0000	0.122	22.6
	11 10	0006	0.111	
	11 10	0015	0.096	
	11 10	0025	0.110	
	11 10	0035	0.131	
73/08/09	15 25	0000	0.035	14.1
	15 25	0005	0.036	
	15 25	0015	0.041	
	15 25	0025	0.066	
	15 25	0037	0.087	
73/10/18	14 40	0000	0.061	10.9
	14 40	0015	0.072	
	14 40	0023	0.060	

STORET RETRIEVAL DATE 75/10/23

173905
39 33 05.0 088 38 10.0
LAKE SHELBYVILLE
17139 ILLINOIS

11EPALES 2111202
3 0029 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/05/08	11 30	0000			18	370	8.00	127	0.130	0.500	4.800	0.146
	11 30	0006	15.9	7.7		370	8.00	127	0.130	0.500	4.750	0.145
	11 30	0015	15.9	9.9		370	8.00	128	0.120	0.500	4.730	0.145
	11 30	0025	15.9	8.1		380	8.10	129	0.120	0.500	4.620	0.142
73/08/09	15 50	0000	27.3		56	400	8.20	145	0.080	1.200	3.100	0.007
	15 50	0005	27.3	10.0		403	8.70	148	0.060	1.100	3.060	0.000
	15 50	0015	27.2	9.0		402	7.50	153	0.100	1.100	3.250	0.027
	15 50	0029	24.4	2.2		468	7.50	198	0.260	1.000	3.830	0.061
73/10/18	16 55	0000	19.2		18	438	8.10	210	0.040	0.700	1.500	0.021
	16 55	0005	19.1	8.4		436	8.10	205	0.040	0.700	1.420	0.020
	16 55	0017	18.5	8.0		441	7.90	200	0.040	0.800	1.340	0.020

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/05/08	11 30	0000	0.195	6.9
	11 30	0006	0.184	
	11 30	0015	0.188	
	11 30	0025	0.180	
73/08/09	15 50	0000	0.049	39.5
	15 50	0005	0.049	
	15 50	0015	0.062	
	15 50	0029	0.119	
73/10/18	16 55	0000	0.092	26.3
	16 55	0005	0.097	
	16 55	0017	0.128	

STORET RETRIEVAL DATE 75/10/23

173906
39 34 15.0 088 43 15.0
LAKE SHELBYVILLE
17139 ILLINOIS

11EPALES
3

2111202
0025 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/05/08	11 50	0000	15.9		20	400	8.00	140	0.120	0.500	5.510	0.111
	11 50	0006	15.8	8.7		380	8.00	137	0.120	0.600	5.170	0.110
	11 50	0015	15.8	8.6		380	8.00	138	0.110	0.400	5.510	0.106
	11 50	0021	15.8	9.0		390	8.00	140	0.110	0.500	5.540	0.113
73/08/09	16 20	0000	27.7		48	404	8.60	152	0.060	1.200	3.160	0.007
	16 20	0005	27.0	8.0		396	8.50	149	0.100	1.100	3.060	0.007
	16 20	0015	26.2	6.0		392	7.60	149	0.160	1.100	3.020	0.008
	16 20	0023	24.0	4.6		417	8.10	179	0.210	1.000	3.160	0.012
73/10/18	14 25	0000	18.0		11	370	8.00	183	0.040	1.100	1.560	0.037
	14 25	0006	17.8	8.4		368	8.00	181	0.030	0.800	1.590	0.040

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/05/08	11 50	0000	0.152	2.9
	11 50	0006	0.144	
	11 50	0015	0.142	
	11 50	0021	0.146	
73/08/09	16 20	0000	0.046	11.9
	16 20	0005	0.041	
	16 20	0015	0.035	
	16 20	0023	0.046	
73/10/18	14 25	0000	0.104	18.8
	14 25	0006	0.104	

APPENDIX E

TRIBUTARY and WASTEWATER TREATMENT PLANT DATA

STORET RETRIEVAL DATE 75/10/23

1739A1
39 24 20.0 088 47 00.0
KASKASKIA RIVER
17081 SHELBY CO MAP
O/LAKE SHELBYVILLE
HWY 16 BRDG AT E EDGE OF SHELBYVILLE
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/06/02	10 20		5.500	1.320	0.150	0.009	0.035
73/07/07	10 39		3.500	2.700	0.210	0.027	0.050
73/08/04	10 20		1.500	2.730	0.310	0.022	0.027
73/09/09	09 45		2.200	1.800	0.092	0.010	0.030
73/10/14	09 00		1.920	1.100	0.240	0.040	0.075
73/11/03	10 35		2.100	0.400	0.052	0.019	0.173
73/12/01	10 10		2.000	0.400	0.016	0.028	0.190
74/01/05	10 45		1.920	0.700	0.082	0.024	0.050
74/02/03	09 15		4.620	2.000	0.155	0.080	0.105
74/03/02	10 30		7.700	1.800	0.105	0.095	0.210
74/03/16	09 30		6.200	0.700	0.070	0.080	0.118
74/04/06	09 30		6.000	0.800	0.075	0.075	0.080
74/05/04	15 15		6.400	0.100K	0.030	0.040	0.050

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/10/23

1739A2
39 34 20.0 088 32 00.0
KASKASKIA RIVER
17 MOULTRIE CO MAP
I/LAKE SHELBYVILLE
HWY 121 BRDG 1 MI N OF ALLENVILLE
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/06/02	12	50	7.400	2.000	0.079	0.126	0.185
73/07/07	13	51	7.500	1.260	0.068	0.130	0.230
73/08/04	11	45	4.000	2.520	0.113	0.120	0.185
73/09/07	13	20	1.640	1.890	0.097	0.260	0.360
73/10/13	17	30	2.900	0.970	0.039	0.357	0.450
73/11/03	11	15	2.500	0.700	0.048	0.410	0.630
73/12/01	10	50	5.500	0.100K	0.020	0.144	0.330
74/01/04	14	30	8.300	0.300	0.032	0.076	0.085
74/02/03	11	45	7.500	0.500	0.040	0.100	0.125
74/03/02	10	30	5.400	1.200	0.210	0.130	0.190
74/03/16	11	00	7.300	0.900	0.035	0.110	0.250
74/04/06	10	45	6.600	0.900	0.035	0.105	0.230
74/05/04	15	50	7.400	2.700	0.340	0.970	1.600

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/10/23

173981
39 34 50.0 088 45 10.0
UNNAMED CREEK
17 SHELBY CO MAP
T/LAKE SHELBYVILLE
HWY 2 BRDG 3.4 MI N OF FINDLAY
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/06/02	10 50		6.500	0.690	0.052	0.042	0.075
73/07/07	11 35		9.100	0.730	0.126	0.039	0.075
73/08/04	10 50		5.200	1.500	0.039	0.054	0.080
73/09/09	10 15		0.530	1.200	0.039	0.220	0.300
73/10/13	17 00		0.340	0.900	0.028	0.273	0.320
73/11/03	11 30		0.126	0.600	0.052	0.077	0.210
73/12/01	10 40		4.600	0.100K	0.024	0.036	0.185
74/01/05	11 15		5.800	0.200	0.020	0.028	0.030
74/02/03	09 45		5.600	1.000	0.275	0.037	0.050
74/03/02	11 20		5.300	1.200	0.160		0.070
74/03/16	10 00		5.400	1.100	0.100	0.030	0.110
74/04/06	10 00		7.680	0.500	0.025	0.035	0.070
74/05/04	16 05		3.700	0.210	0.210	0.020	0.020

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/10/23

1739C1
39 34 50.0 088 45 20.0
WILBORN CREEK
17 MOULTRIE CO MAP
T/LAKE SHELBYVILLE
HWY 13 BRDG 3.5 MI N OF FINDLAY
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/06/02	11 00		7.000	0.420	0.068	0.035	0.075
73/07/07	11 44		9.300	0.320	0.062	0.033	0.072
73/08/04	11 00		5.400	0.360	0.016	0.048	0.090
73/09/09	10 20		0.470	0.930	0.042	0.048	0.108
73/10/13	16 51		0.490	0.780	0.022	0.042	0.095
73/11/03	11 35		2.400	0.450	0.036	0.023	0.175
73/12/01	10 45		6.600	0.100K	0.012	0.028	0.195
74/01/05	11 30		8.100	0.300	0.016	0.024	0.045
74/02/03	10 00		7.980	0.900	0.230	0.040	0.080
74/03/02	11 25		7.980	1.600	0.130	0.035	0.095
74/03/16	10 05		8.000	0.500	0.030	0.030	0.100
74/04/06	10 05		7.300	0.500	0.015	0.030	0.065
74/05/04	16 15		8.100	0.300	0.240	0.010	0.025

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/10/23

173901
39 38 00.0 088 42 50.0
OKAW CREEK
17 MOULTRIE CO MAP
T/LAKE SHELBYVILLE
HWY 121 BRDG 1 MI SE OF BETHANY
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/06/02	11 50		8.000	0.130K	0.068	0.065	0.110
73/07/07	12 12		8.700	1.540	0.097	0.056	0.110
73/08/04	11 45		4.400	2.100	0.115	0.078	0.105
73/09/09	10 50		1.040	1.590	0.176	0.060	0.165
73/10/13	15 12		2.200	0.780	0.029	0.110	0.220
73/11/03	10 30		2.900	0.650	0.056	0.105	0.315
73/12/01	11 10		5.900	0.100K	0.036	0.048	0.230
74/01/05	13 00		8.200	0.300	0.028	0.036	0.065
74/02/03	10 65		8.200	0.500	0.150	0.055	0.075
74/03/02	11 45		8.500	2.000	0.150	0.040	0.120
74/03/16	10 30		8.300	1.100	0.050	0.040	0.105
74/04/06	10 30		7.700	0.600	0.025	0.030	0.075
74/05/04	16 45		9.000	0.300	0.015	0.035	0.052

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/10/23

1739E1
39 37 50.0 088 43 30.0
MARROWBONE CREEK
17 MOULTRIE CO MAP
T/LAKE SHELBYVILLE
SEC RD BRDG 1 MI SSE OF BETHANY
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/06/02	11 15		10.500	1.700	0.950	0.180	0.250
73/07/07	12 00		8.100	2.200	0.050	0.037	0.135
73/08/07	09 30		1.000	1.100	0.036	0.042	0.116
73/09/04	10 37		2.200	3.570	2.200	2.500	2.880
73/10/13	16 38		5.200	2.700	0.585	1.030	1.400
73/11/03	11 00		5.300	0.500	0.094	[illegible].240	0.430
73/12/01	11 00		7.300	0.100K	0.016	[illegible].060	0.230
74/01/05	11 45		8.600	0.400	0.056	0.064	0.085
74/02/03	10 30		7.980	2.000	0.450	0.060	0.085
74/03/02	11 40		8.600	1.100	0.115	0.035	0.115
74/03/16	10 20		8.500	0.800	0.065	0.060	0.095
74/04/06	10 20		7.680	0.400	0.025	0.040	0.055
74/05/04	16 30		8.500	1.100	0.280	0.085	0.145

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/10/23

1739F1
39 34 40.0 088 35 50.0
ASA CREEK
17 MOULTRIE CO MAP
T/LAKE SHELBYVILLE
SEC RD BRDG 1 MI SSE OF SULLIVAN
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/06/02	12 17		10.000	0.960	0.400	0.980	1.200
73/07/07	13 24		9.800	0.520	0.052	1.620	1.650
73/08/04	10 30		7.500	1.500	0.336	0.700	0.770
73/09/08	12 15		8.300	4.300	0.420	6.400	6.850
73/10/13	15 30		5.000	3.500	1.500	2.300	3.000
73/11/03	10 30		5.900	1.150	0.077	2.200	2.600
73/12/01	10 00		7.200	0.900	0.124	0.400	0.635
74/01/04	10 30		8.500	0.900	0.252	0.300	0.470
74/02/02	11 30		8.300	0.400	0.130	0.195	0.250
74/03/02	10 10		8.100	2.100	0.290	0.140	0.250
74/03/16	10 00		8.300	1.300	0.170	0.280	0.380
74/04/06	09 45		7.400	0.850	0.115	0.270	0.340
74/05/04	18 30		6.900	0.600	0.015	0.035	0.060

STORET RETRIEVAL DATE 75/10/23

173961
39 35 20.0 088 33 20.0
JONATHAN RIVER
17 MOULTRIE CO MAP
T/LAKE SHELBYVILLE
SEC RD BRDG 2 MI E OF SULLIVAN
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/06/02	12 32		8.600	0.860	0.100	0.054	0.110
73/07/07	13 40		9.200	1.260	0.120	0.065	0.087
73/08/04	11 15		6.600	2.400	0.110	0.078	0.110
73/09/08	10 15		0.720	2.000	0.510	0.220	0.375
73/10/13	16 30		0.810	1.760	0.290	0.400	0.830
73/11/03	10 45		1.060	1.900	0.250	0.176	0.430
73/12/01	10 20		6.200	0.100K	0.068	0.096	0.270
74/01/04	10 20		8.600	0.650	0.060	0.035	0.070
74/02/02	11 30		7.980	0.300	0.035	0.050	0.065
74/03/02	10 30		8.200	0.900	0.050	0.040	0.125
74/03/16	10 30		8.400	0.700	0.040	0.045	0.120
74/04/06	10 50		7.600	0.600	0.042	0.040	0.080
74/05/04	17 55		7.000	0.100K	0.020	0.025	0.070

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/10/23

1739H1
39 30 40.0 088 32 50.0
WHITLEY CREEK
17 MOULTRIE CO MAP
T/LAKE SHELBYVILLE.
SEC RD BRDG 2.5 MI S OF ALLENVILLE
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/06/02	09 00		6.300	1.680	0.066	0.048	0.095
73/07/07	14 28		9.900	1.835	0.110	0.048	0.070
73/08/07	11 00		5.900	0.540	0.126	0.065	0.072
73/09/08	09 00		0.380	2.940	0.260	0.100	0.200
73/10/13	13 45		0.066	1.500	0.063	0.085	0.192
73/11/03	09 30		0.130	2.400	0.270	0.138	0.240
73/12/01	09 18		5.300	0.500	0.156	0.072	0.230
74/01/05	09 30		8.800	0.400	0.052	0.028	0.060
74/02/02	10 30		8.600	0.100	0.040	0.045	0.060
74/03/02	09 45		8.200	1.100	0.045	0.045	0.165
74/03/16	09 00		7.700	1.200	0.050	0.055	0.250
74/04/06	08 40		7.000	1.000	0.035	0.055	0.220
74/05/04	19 00		7.600	1.000	0.340	0.990	1.650

STORET RETRIEVAL DATE 75/10/23

1739J1
39 28 40.0 088 39 10.0
SAND CREEK
17 SHELBY CO MAP
T/LAKE SHELBYVILLE
SEC RD BRDG 3.5 MI NW OF WINDSOR
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/06/02	09 40		2.600	1.800	0.200	0.029	0.175
73/07/07	15 00		2.900	1.900	0.058	0.015	0.095
73/08/04	09 00		2.200	1.260	0.035	0.011	0.045
73/09/09	09 00		0.750		0.180	0.033	
73/10/14	08 10		0.110	1.850	0.490	0.138	0.490
73/11/03	09 30		1.660	2.450	0.440	0.680	1.250
73/12/01	09 30		5.700	0.600	0.112	0.208	0.440
74/01/05	10 07		8.100	0.400	0.072	0.096	0.125
74/02/03	11 30		7.100	1.500	0.460	0.105	0.140
74/03/02	09 50		7.300	1.400	0.120	0.075	0.180
74/03/16	09 00		7.600	0.700	0.035	0.080	0.180
74/04/06	09 00		6.720	0.800	0.045	0.070	0.125
74/05/04	14 30		6.700	0.400	0.120	0.145	0.170

STORET RETRIEVAL DATE 75/10/23

1739GA TF1739GA P000400
39 39 03.0 088 31 34.0
ILLINOIS MASONIC HOME
17 MOULTRIE COUNTY
T/LAKE SHELBYVILLE
JONATHON CREEK
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/08/01	13 30		7.800	1.945	0.110	6.862	7.400	0.049	0.049
73/09/04	13 00		13.000	4.400			13.000	0.049	0.049
73/10/05	12 30		14.000	7.800	0.230	11.800	14.000	0.049	0.049
73/11/03	08 30		12.000	4.475	0.440	11.600	12.500	0.049	0.049
73/12/05	07 30		5.800	2.300	0.044	4.300	5.900	0.049	0.049
74/01/07	08 00		13.400	2.900	0.110	9.600	12.500	0.025	0.027
74/02/05	08 00		9.000	4.350	0.710	8.000	13.500	0.049	0.049
74/03/07	08 00		9.100	3.100	0.050K	5.800	6.500	0.049	0.049
74/04/10	20 00		4.900	2.200	0.360	2.800	4.000	0.049	0.049
74/05/11	08 00		16.000	6.300	0.180	11.300	14.000	0.050	0.050
74/06/06	08 00		8.800	5.000	0.310	7.400	8.300	0.050	0.050

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/10/23

1739XA AS1739XA P005000*
39 33 40.0 088 36 38.0
SULLIVAN STP
17 MOULTRIE COUNTY
T/LAKE SHELBYVILLE
ROBINSON CREEK
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/07/24	11	30	3.500	1.000		1.200	1.550	1.320	0.800
73/08/17 09 30 CP(T)- 73/08/17 14 30			3.330	4.800	0.010	1.770	5.200	0.609	0.795
73/09/14	13	00	19.000	2.600	0.105	4.100	5.225	0.429	0.450
73/10/16 10 30 CP(T)- 73/10/16 13 30			13.000	0.900	0.009	7.900	8.600	0.565	0.477
73/11/14 10 00 CP(T)- 73/11/14 13 30			16.600	1.500	0.120	9.000	9.700	0.426	0.540
73/12/17 09 30 CP(T)- 73/12/17 14 00			10.200	16.000	0.062	6.250	9.000	0.850	0.999
74/01/15 09 00 CP(T)- 74/01/15 13 00			2.880	11.000	1.920	3.400	4.500	0.750	0.816
74/02/11 08 15 CP(T)- 74/02/11 13 30			8.600	3.300	0.120	3.360	4.900	0.875	1.100
74/03/13 08 15 CP(T)- 74/03/13 13 15			4.300	1.500	0.050	1.400	1.900	1.320	1.120
74/04/15	14	00	5.400	2.500	0.085	2.300	3.600	0.759	1.050
74/05/14	11	30	6.500	1.000K	0.050	2.650	3.500	0.887	0.801
74/06/13 11 15 CP(T)- 74/06/13 14 30			4.500	13.000	0.250	3.000	3.550	0.801	0.908
74/07/15 07 15 CP(T)- 74/07/15 13 30			6.000	10.000		5.700	6.500	0.549	0.562

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/10/23

173921 AS173921 P000010
39 24 35.0 088 46 30.0
UAM EAST ACCESS AREA-SHELBYVILLE
17139 SHELBY COUNTY
D/LAKE SHELBYVILLE
LAKE SHELBYVILLE
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/07/27	11 00								
CP(T)- 73/07/27	16 00		14.800		0.150	1.680	2.700	0.002	0.003
73/08/03	11 00								
CP(T)- 73/08/03	16 00		27.000		0.006	2.050	2.275	0.002	0.002
73/09/07	11 00								
CP(T)- 73/09/07	16 00					0.034	0.185	0.002	0.002
73/10/05	11 00								
CP(T)- 73/10/05	16 00		55.000	0.100K	0.010K	0.390	0.530	0.002	0.002
73/11/06	11 00								
CP(T)- 73/11/06	16 00		10.400		0.016	0.024	0.190	0.002	0.002
73/12/07	11 00								
CP(T)- 73/12/07	16 00		3.500	5.400	0.060	0.040K	0.150	0.002	0.002
74/01/07	11 00								
CP(T)- 74/01/07	16 00		0.760	3.000	0.040K	0.170	0.380	0.001	0.001
74/02/01	11 00								
CP(T)- 74/02/01	16 00		1.200	2.400	0.040K	0.220	1.750	0.001	0.001
74/03/01	11 00								
CP(T)- 74/03/01	16 00		1.120	1.600	0.050K		0.050	0.001	0.001
74/04/03	11 00								
CP(T)- 74/04/03	16 00		3.050	2.300	0.066	0.086	0.050K	0.002	0.001
74/05/03	11 00								
CP(T)- 74/05/03	16 00		41.000	1.000K	0.110	0.170	0.240	0.002	0.001
74/06/04	11 00								
CP(T)- 74/06/04	16 00		4.200	28.000	14.500	0.570	0.650	0.002	0.002

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/10/23

173921 AS173921 P000010
39 24 35.0 088 46 30.0
DAM EAST ACCESS AREA-SHELBYVILLE
17139 SHELBY COUNTY
D/LAKE SHELBYVILLE
LAKE SHELBYVILLE
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
74/07/01	11 00								
CP(T)-			30.000	8.500	0.350	1.550	1.800	0.001	0.001
74/07/01	16 00								